

Charles Robinson Esq
with the illustrious Author
A LECTURE *Robinson*

ON

THE NATURE AND GOVERNMENT

OF THE

HEALTH,

DELIVERED AT THE

PHILOSOPHICAL INSTITUTION, CANNON-STREET,

BIRMINGHAM,

ON DECEMBER the 10th, 1839,

TO THE

Members of the Lodges of United Brothers.

BY W. WATTS, SURGEON.

"Plures crapula quam gladius."

"Gluttony kills more than the sword."

Birmingham:

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MDCCCLX.

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Read, mark learn & then go
to the

NOTICE TO THE READER.

By those of my readers who may have heard this Lecture delivered, it will be seen that some alterations have been made, particularly in the descriptive parts. Not having the aid of diagrams in the publication of this Lecture, I feel that to explain the several structures minutely, would tend only to confuse the reader; I have therefore generalised my descriptions as much as possible, rather than run the risk of being too intricate and obscure. Should the Lecture be read by any to whom the subject is familiar, I beg to state, that it was composed for those whose circumstances have been less favourable, to whom a knowledge of themselves has been little taught, and who are more especially to be benefited by such a knowledge. I have therefore written this Lecture in as plain and popular a manner as I well could, with the only hope that it may be of some good to those whom fortune has little favoured, or education sustained.

W. W.

11, Colmore Row.

January 3, 1840.

TO
THE MEMBERS
OF THE
ORDER OF UNITED BROTHERS,

This Lecture
IS RESPECTFULLY DEDICATED

BY THEIR MOST OBEDIENT SERVANT,

THE AUTHOR.



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LECTURE

ON THE

Nature and Government of the Health.

IF there be one kind of knowledge more important than another, it is the knowledge of ourselves; the knowledge of our bodily structure and of its various functions; without this knowledge, it were vain to strive after that higher wisdom, which enables us to know and to govern our moral being, for there is so close and instant a connection and sympathy between the body and mind, that they can act only as one and the same agent;—as the humourist quaintly expresses it: “The body and mind are like a jerkin and a jerkin’s lining; rumple the one and you rumple the other.” We need not here expatiate on the relative utility of such a knowledge of ourselves, nor linger over the record of those sweet and spontaneous enjoyments that are the offspring of health, enjoyments that owe little to the vicissitudes of fortune or the caprice of friends. Is it not, then, the strangest anomaly in the history of mankind, that this invaluable knowledge is, after all, the most generally neglected; indeed, so ignorant are the mass of mankind of the structure and functions of the human frame, that if it were not for the providential interposition of those pains and aches attendant upon diseases, (that neglect and abuse have caused) the duration of life would be constantly abbreviated; thus our very sufferings are the best and only barrier to those many and frequent dangers which an ignorance of ourselves occasions. A comparison of the mean duration of life with the ancients and moderns, will

illustrate these remarks. In spite of the ignorance which so widely prevails, the amount of information on such subjects, particularly with the commercial classes, is greatly in our favour, so that, assisted by the greatly improved state of the science of medicine and medical policy, the average amount of life has increased thirty years in favour of our own time; what, therefore, might not be predicted, if self-knowledge became universally and adequately known? But this improvement in the duration of life is relative to the whole, not to a particular class, and even with the whole it is much to be regretted, that disease does not decrease in the ratio of mortality, there are thousands that illustrate the old proverb of the "creaking gate," and whose existence is little better than a living death. But what is still further to be deplored, is, the evil consequence of an ignorance of our own physical structure, during the times of sickness: it was this manifest and deplorable fact which first induced me to offer you a Lecture on "The Nature and Government of the Health." None but medical men can tell the trouble they have to manage a patient ignorant of his own structure; no one can tell the dismay, the anxiety of the doctor, who finds all his rules disregarded, and the life of his patient made a sacrifice, or at least his illness aggravated and prolonged, by some foolishly indulged whim, from which, had the patient known the consequences, he would naturally have abstained. It was the frequent repetition of such errors, which encouraged me to give this Lecture; and I hope, gentlemen, you will, from these few remarks, see the importance of yielding some little attention to those truths, in which your own happiness, and indeed the happiness of your families, is so essentially concerned.

Before we can define the nature of health, it is unavoidably necessary that we explain the structure of those organs, on whose healthy state and action health depends. To propose any rules of self-government, without first explaining the structure of the machine to be governed, would be something like trusting a valuable chronometer in the hands of a savage, with no other information than how to wind it up; it might

possibly last uninjured for years, but the chances would be greatly against it.

We shall, in this demonstration, confine ourselves to those particular organs, over which every individual may, to a great degree, hold a voluntary jurisdiction, and which are, at the same time, the principal vital organs of the body. They are the Skin, Lungs, and Digestive Organs; incidentally we shall speak of the Heart, and Nervous System. Of course we cannot dwell long upon these various subjects; all that our time will afford, will be to explain very briefly their position and uses. We commence with the skin.

The skin is composed of three separate layers; the external possesses little or no sensibility, and is little else than a sheath for the protection of the internal layers, and by its density, dryness, and polish, adds so much to the beauty and complexion of the body. The next, or second layer, is called the Rete Mucosum;* it is in this texture that the colour of the species resides distinguishing the chalky Albino, the fair Caucasian, the tawny Mongolian, the red American, or the dark Ethiopian race; this layer also receives the capillary bulbs, and supplies the hair with nourishment; this part is closely united in function with the third layer, or true skin, which is little else than a net-work of vessels, nerves, and absorbents, spread over the whole body, and whether it be the callous sole of the foot, the sensitive fingers, or the pulpy lips, they are all covered by one continuous interlacement of vessels, nerves, and absorbents; but what is still more remarkable, while the external layer of the skin terminates at the lips and nostrils, eyes, rectum, and urethra, the true skin is continued throughout the whole alimentary canal, lining the stomach and intestines, and the floor of the mouth and fauces, so that it is no wonder that cold feet should instantly occasion pains in the bowels and purging, that checked perspiration should cause sneezing and suffused eyes and nose, or that a sudden draught of cold water or acid drinks, acting instan-

* *Rete*, or net—the mucous coat, or net.

taneously on the internal skin, or mucous membrane of the stomach, should cause a sudden rash or surfeit to cover the whole external surface of the same membrane; this is no more strange, considering the continuity of the same membrane and the interlacement of its vessels, than that by putting your ear at one end of a piece of timber, several feet long, you can hear the vibration caused by the grating of a pin at the opposite end. What is the office of this beautiful reticulation of vessels and nerves, so closely interwoven that not even the spider's most attenuated thread could pass through without touching them? The nerves, as it were, diffused over certain parts, as the fingers, constitute them as organs of touch, while the whole body is protected by a similar susceptibility of impression when approached by external objects, and which is singularly acute in the deaf and dumb, and blind; the nerves thus act both as a guard to protect, as well as to administer to the pleasures of the body. But the grand function of the skin, with reference to life and health, is as an exhalant—it is not of less importance in the animal economy, than the digestive organs themselves, and we could perhaps do less without this function of the skin, than that of the bowels. It is computed that the surface of the skin in a full grown man occupies about 2,500 square inches; literally suffused with blood propelled to it from all the great vessels of the body, these minute tubes would soon give way or, returning the superflux of blood to the internal vital organs, would collect within and deluge them, causing instantaneous death, as in apoplexy, if it were not the peculiar function of the skin to be continually exhaling the superabundant and vitiated fluids of the body. This is incessantly required, at some times more than others, but is always going on; if this were not the case, the quality of the blood would soon become corrupted, the increasing amount of carbon* in the blood would soon dispel the pleasurable sensations of health, and the alimentary debris

* Carbonic acid gas—this gas is invisible, extinguishes flame, and is fatal to animal life.

would hinder, and finally stop the operations of life. Imagine a suspension of one law of nature, that of waste and supply; fancy the rivers, lakes, seas, and waters of this beautiful earth no longer subject to the laws of heat, no exhalations, no diminution, no waste, they would become mere stagnant and pestilential pools; it is from their exhalations, their continual waste, that they derive their freshness, vitality and supply. Throughout every department of nature, (says Dr. Coombe) waste is the invariable result of action. The lungs and the skin are precisely subject to the same law of waste by exhalation; it is not from the ejected fæces that the health is so much preserved, as from the adequate waste or exhalation from the skin and lungs. It is computed that a grown up person loses from thirty to forty ounces of waste matter, exhaled by the skin and lungs, every twenty-four hours. This loss or waste is the per contra to the supply, which being as it were newly imported, renewed health and vigour is thus maintained. This waste is chiefly kept up by what is termed insensible perspiration, insensible, because unperceivable by us. But there is also another most important function belonging to the skin, that of absorption as well as exhalation. If a traveller, exhausted and languishing with thirst, get into a hot bath, his thirst will soon be relieved; perhaps in this instance, less by the absorption of the water, than by the soothing effect of heat upon the cuticular nerves: another instance—rub mercurial ointment upon the skin, and salivation will soon follow; or if white-lead paint be not washed from the hands, colic and paralysis will speedily supervene. These are the principal functions of the skin, which we must carefully remember if we wish to avail ourselves of the rules hereafter to be recommended.

The Lungs are two large spongy bodies, situated one on each side of the chest; they may be compared to a piece of sponge in texture, being divided into an innumerable range of cells or small cavities, and thus the relative weight of the lungs is much less than their bulk. The purpose of these air cells is to receive the air we breathe in respiration; but has it ever struck

you how this air supported life?—for we need no ghost from the grave to tell us without air we cannot live:—it is not merely being inspired and expired, that would do little toward the matter. We shall presently state, when speaking of the course of the chyle (or new-made food) that, after flowing into the heart, it is forced by the contraction of the heart through the pulmonary artery into the lungs, these vessels, ramifying throughout the whole substance of the lungs, the fresh air breathed into the lungs acts upon the venous blood, the oxygen of the air, which is the support of life throughout all nature, unites with the blood, while the blood gives out through the invisible mouths of the arterial tubes a large portion of its dead carbon, changes instantly from black to a florid red colour, from a sluggish inert fluid it is instantly turned into a vital element—touched with new life, it courses back to the heart, to communicate to every fibre of the physical commonwealth the renewing pleasures of life and health.—What then is respiration?—as Coombe most justly expresses it—respiration is the completion of digestion.

We shall now rapidly describe the organs concerned in the office of digestion. They are the Teeth, Salivary Glands, Stomach, Intestines, Liver, Spleen, Pancreas and Kidneys. The human teeth are of three kinds—cutting, tearing, and grinding teeth; unlike most animals, man is not limited to one kind of food, and is therefore supplied both with the teeth of the carnivorous (flesh eating) and herbivorous animals, thus enlarging the powers, and encreasing the pleasures, of his sensual appetites. To judge by the little use some persons make of their teeth in the process of eating, which should be rather called gulping with them, it might be supposed that the teeth were given us only to crack nuts, or serve as a sort of ornamental balustrade to the mouth, but reasoning upon the logic of Dr. Pangloss, that as noses were made for spectacles, therefore we have spectacles, it may be as logically argued, that as we have teeth, they were made for some other purpose than to be drawn out. It is too true, that the merit of cleanliness, particularly with the working classes,

is so rare, that the teeth would not be very well adapted even for an ornament. The working man can at least claim no excuse for such a neglect; his labour may soil the skin, in spite of soap and water, but for the teeth no such apology can be pleaded, a tooth-brush and a little water, used every day, will give them not only the advantage of cleanliness, but will most certainly tend to preserve them sound for the performance of their most important office, in the process of digestion. Without the teeth what is to become of the secretion of the salivary glands, situated under each side of the jaw, and in the process of chewing pouring out the saliva in abundance, to mix with and soften the alimentary bolus, previous to its introduction into the stomach; of course, if the food be but half chewed, there is no time for the saliva to be secreted, or mixed with the food, which passes hard and dry, and unprepared into the stomach; thus we cannot dispense with any one organ of the body, without desparagement to the others. The Stomach is a large membranous bag, not inaptly compared in shape to a Scotch bagpipe; it has two openings, the first Cardiac (opening from the throat,) the second Pylorus (from *Pylorus*, a sentinel,) because this opening is valvular in structure, and prevents any food passing into the intestine, until properly digested. The stomach has three coats, the internal or mucous being the cuticular continuation, a muscular, and a strong membranous coat; it is just below the diaphragm, (or midriff) extending from left to right. The stomach terminates in the small intestine, (or second stomach); into this part of the intestine the liver empties its bile, by means of a small vessel coming from the gall bladder, and which bile unites with the fluid secreted by the pancreas. The Pancreas is a long slip of glandular substance, which secretes a fluid similar to saliva, that is poured into the small intestine, and mixes with the bile; the intestinal canal is divided into several portions, it becomes very involved, and though so extended, being nearly six times the length of the body, yet occupies so small a space as the abdominal region. The intestines are composed of the same number

of coats as the stomach, and indeed are similar in structure. The kidneys, which lie deep seated beneath the intestines, are of course essentially necessary with the other organs, though not perhaps to be numbered as one of the digestive organs.

The process of digestion is thus briefly explained. The food is submitted to the action of the teeth, mixes with the saliva poured out, is passed into the stomach, there the gastric juice secreted by the mouths of the arteries of the stomach soon acts upon the food, and, according to its density, two, four, or six hours are occupied in the conversion of the food into a light pulpy mass, called chyme, this passes through the pylorus, or second opening, into the first part of the intestinal canal, is propelled forwards, meets with the biliary and pancreatic juices, when a new process begins; the debris or coarse and innutritious matter defecates, while the light milky chyle or nutriment of the food is absorbed by the lacteals, an infinite number of minute vessels that suck up the chyle, convey it into a larger vessel, which passes up the left side of the spine, and is finally emptied into the left subclavian vein, (just beneath the collar-bone), passes into the heart, which contracts and propels it through the lungs by the pulmonary arteries, there to be subjected to the action of the air; converted from dark or venous blood into red oxygenized blood, it is then returned to the left side of the heart, and by means of a large tube, called the Aorta, rising from the left ventricle, the blood is sent to supply every part of the system to repair again the loss which the pulmonary, cuticular, intestinal and renal waste have caused.

The stomach is supplied with nerves coming directly from the brain, and is so utterly dependant upon the nervous power communicated by the brain to it, that the force of the digestion is always in proportion to the nervous influence, and which, if interrupted, as by the division of the nerve, digestion is wholly destroyed. The influence of the nerves will be further spoken of in connection with the government of the health.

The Spleen has not been described, as its use is not even

known to medical men. It is supposed that its office is to supply the stomach with an increase of blood during the process of digestion, and may perhaps in some way qualify the blood to secrete the gastric juice. Having thus far explained the organs of digestion, our next step must be to consider the nature and government of the health.

What is health? There are few questions that appear more simple or more easily answered than this, while the sudden surprise with which the question would be repeated, would at once betray the novelty and difficulty of its definition. The objects and impressions of our constant experience excite little curiosity. Familiarity causes indifference, or "begets contempt," and thus, like our personal relations, enquiries the most important may be too familiar to interest us. Health is a word so often used, that its nature seems implied in the very term. One person would probably reply: "Health!—is to be well:" another might answer the query by a reference to his own sensations of health: "What is health? why what I feel:" a third might substitute a synonyme for a definition, as soundness, purity, sanity, &c. or a mere verbal meaning, as "freedom from sickness."—Health is that pleasurable condition of the whole body, which is felt when all its functions are in perfect harmony. But health with us is little better than a negative pleasure; there are few who know what it is to enjoy perfect health: it is only in childhood, and too seldom then, that health is what it should be; when we feel that exuberance of vitality that quickens every fibre, an activity which knows no fatigue, an excitement that asks no effort; the little lightsome girl, who, in the overflowings of her joyous sensations, suddenly exclaimed: "Oh! what a funny thing it is to live," felt this thrill of real active enjoyment; a power that augments from year to year, from the restlessness of childhood up to the unconquerable energy of a riper age. And that too often reprehended frivolity of youth becomes the spirit and health of manly enterprise and action. But can he expect to enjoy this rich profusion of health, when surrounded by the most adverse circumstances? for who is exempt from the cares and anxieties

of life, from want, or, what is worse, the apprehension of want? can we then expect to enjoy those sensations of pleasure, whose sweet concord springs up from the simultaneous harmony of all our physical and mental faculties? Health is not the handmaid of care and toil, and of excesses that abuse so cruelly the laws of our mysterious being. Health is the inheritance of peace, temperance and activity. "But I have no disease, no pain, no ache," exclaims the hearer; so much the better, but competence is not affluence, and if so little effect so much, how infinitely poor are we of that superflux of health

That glows in the brain and dances in the arteries,
Like the wine some joyous guest hath quaffed,
That glads the heart and elevates the fancy.

To seek for full, active health, in the circumstances which surround us, would be like seeking for perpetual motion. Health is with us all so precarious, that there are few who could say they felt as well, in ALL respects, one day as another; either they were a little low, or dull, or blue, or queer, or cross, or a little head-ache, or one of those little nothings in the catalogue of our teazings which few escape; and yet *who* would confess they were ill?—"Ill! oh no! I'm very well—very well—a little pain in my head, that's all!"—such is what we call *health*. Such health, in fact, is like a pendulum, ever oscillating between two extremes. It may be argued, that if health be made so impossible a thing, why trouble ourselves about it, and so, like the poor prisoner who became, from long imprisonment, enamoured of his chains, and would not leave, we are to sit ourselves down with that small patrimony of nature, which our fathers have transmitted to us. Let us not find an apology in such an argument; the higher position a virtue claims, the more worthy is the venture. We should strive to rise to the possession of those pleasures, which nature encourages us to enjoy, not sink the laws of nature to our level. The higher the attempt, the more we shall undoubtedly enjoy, although we fell short of the full amount. The question naturally rises here.—How

are we to gain health, and how are we to keep it? which is the government of our health? At the commencement of the Lecture we stated that the examination of the structure would be confined to those particular organs, over which we all possessed a considerable controul; they were the skin, lungs, and digestive organs, and there can be no doubt but by the really easy attention which these organs require, and which every one may observe, health, such health, perhaps, as few have ever enjoyed, may be experienced and permanently sustained through a long life, until, in the beautiful expression of scripture, "we fall asleep." For though death be the law of nature, it need not be the result of disease. The skin demands our first consideration, and here let me most seriously impress upon you the importance of not trifling with a plan because it is simple, and perhaps self-evident. The treatment of the health has, from long ignorance, been regarded as a sort of cabalistic affair; and no one would believe, for instance, that cold water could be of any good, unless it was in the form of a lotion; or that a law of health could be administered in any other form than as a dose of physic, and the more nauseous the better: but the doctors must not here throw stones, for it is scarcely fifty years since, when charms and spells, and dead mens' skulls, were admitted into the medical mystery.

The skin, we observed, was one exhalant surface over the whole body, continually, though insensibly, relieving the body of its superfluity of heat and waste. "The loss of fluids during the night by insensible perspiration, is said by Sanctorius, to be twice as much as when awake; while the loss of solids is greater through the day." At all times this transpiration must go on; if it be for a moment suddenly arrested by cold damp clothes or a sudden stream of cold air, a revulsion will occur on the instant, and perhaps a cold, either local or general, follow. It is too little known how deeply sympathetic the great organs of life are with the skin. The bowels respond, as the state may be, either salutary or prejudicial, sickness the most severe may often be relieved by copious cuticular evacuation, while the

sympathy of the brain is so decisive, that nothing tends to dissipate its clouds and irritability more, than a good and energetic walk or ride. An anecdote is told of a lady, who, whenever her domestic affairs irritated her, had the philosophy to adopt her never-failing remedy of a long walk, which always restored her good temper. Many diseases of the brain are alleviable only by hard and laborious exercise, which, propelling the blood from the deranged organ to the surface of the body, and thereby diminishing its volume, the diseases are kept under, and ultimately overcome. The celebrated Pinel in France, in his treatment of the insane, has adopted severe exercise out of doors, as one of the most successful remedies. A free and encreased waste from the skin is the best medicament in the world—possessing all the advantages, without any of the evils, of the lancet or the pill. In the government of our health, do not these facts clearly point out to us the importance of two things?—The first, that the skin should be kept clean, that its pores be relieved of the dried matter, which must necessarily be deposited over the whole surface of the body. Imagine a pool, whose water has been nearly exhaled in the sun,—such is the state of the body long unwashed; thus this great function of the skin not only becomes interrupted, but being also an absorbent, the suppressed fluids are retaken into the system to be again mixed with, and adulterate, the vital blood. Take the cleanest napkin, an hour after washing, rub the body—it will be soiled. Diseases thus arise; and when the patient appears before his medical adviser, he wonders how he can be ill, considering how very temperate are his habits, and how much care he takes of his health. The body should be washed at least twice a-week from top to toe, especially considering the confined dusts, and laborious nature, of most of the trades in manufacturing towns. People too generally make quite a virtue of washing the ends of their noses, and the tips of their fingers every morning,—forgetting, or not knowing, that those parts of the body that are covered are necessarily the most unclean. If we had time to speak of the gorgious baths of

Caracalla, which the poorest citizen of Rome could enjoy, "the splendid marble" fountains of the East, we might, perhaps, give dignity to a subject, which, after all, calls for no auxiliaries, to prove its great efficacy in the government of the health.* Exercise is the second and not less important rule in regulating the function of the skin; we need only refer to what has been already said on this subject, to enforce this most essential rule, for not only the skin but every organ of the body participates in its results.†

From what has been already stated, when speaking of the exhalent organs of the body, the functions of the lungs will be added to that of the skin, in disburdening the body of its waste matter. The lungs, it will be remembered, were described as a congeries of air cells, throughout which the pulmonary arteries ramified in all directions to receive the necessary influence and admixture of the oxygen of the air breathed in, as also to exhale the superabundant carbon contained in the venous blood. Knowing the office of the lungs, it becomes at once self-evident that the perfection of their function will depend mainly upon the amount and purity of the air inspired at each breathing. This will appear still more evident, when we are informed that all the blood in the body, averaging 20 lbs. in adults, passes through the lungs twenty times in an hour; thus 400 lbs. of blood require to be exposed to the air during that time, and in order to keep it pure and healthy, it is computed that it must every hour

* A few months since there was a proposition for public baths. I assure you I looked forward with no little interest to the developement of the scheme; for independent of the great individual good to be derived, I hoped that an indulgence might be thus granted to all, rich and poor, and thus unite us all in one common enjoyment; and nothing tends to elevate the low, and to support the destitute, like an occasional equality of enjoyment. I fear, like many similar schemes, the attempt has died a natural, or rather an *unnatural* death.

† The well-known dictum of Demosthenes, when questioned what was most requisite to make a perfect orator, might truly have been stolen from the Apothegms of Hippocrates, so well does the rule apply to the government of the health. "The first thing," said he, "is action; the second is action; and the third is action."

consume no less than 1,875 cubic inches of oxygen or vital air, and give out 1,666 of carbonic acid gas, which is prejudicial to life. If we remember that the air we breathe is composed of two elements, oxygen and nitrogen, or azote, in the proportions of one of oxygen to about four of nitrogen, it will be still more evident, that with such a small proportion of oxygen as one to four of azote, the necessary supply can be kept up only by a constant and easy admission of pure air. And how has mankind provided for this most essential requisite?—as if infatuated by the veriest perversity, scarcely any attention has been bestowed upon it. The iron hand of commerce has arrested the laws of life and nature from their legitimate purpose: the capitalist sustains his crushing competition as the workman just sustains his life, by the cruelest sacrifice of health and happiness. What a melancholy comparison does the beginning of the last and present century offer to us, in the sanitary, as well as in the domestic state of the artisan. Before the year 1760, (says Gascal) manufactures were confined to the demands of the home market. The domestic manufactures were scattered over the entire surface of the country. When the hand-loom formed a part of the household furniture of the quiet family, whilst every hamlet and village resounded with the clack of the hand-loom and the ring of the hammer. What was the state of the once happy English artisan, is still peculiar to the Switzer.

Symons, in his admirable treatise on Arts and Artisans, thus writes: "I visited many of the cottages of the artisans of Appenzal, with M. Zellweguer, and was invariably struck by the high degree of ease and peacefulness they exhibited. The cottages of both these Cantons are scattered separately over the vales and hills, each standing in the midst of its little estate, with the goats or sheep, with their melodious bells to their necks, grazing on the land, which is generally pasture." He continues: "Low indeed would be the income of the Swiss artisan peasant were his payments his sole means of existence. But there are other means, whereby the careful observer may readily supply the absence of pecuniary criteria. The evidences of a well-furnished and roomy house, excellent

clothing, and superior education, are sufficient to testify the exceeding difference between the means and money earnings of the Swiss artisan; but still surer indices of a high physical prosperity are legibly written on the rosy cheeks of each cottage child and in the happy countenances and robust frames of the adult artisan. These favourable circumstances, which once existed here, have unhappily given place to the densely crowded city, the dark, heated and dusty manufactory, where the atmosphere is made still more noxious by the number of workmen crowded together, often low in situation, with little or no ventilation."

Mr. Thakrah observes: "The dust largely inhaled in respiration irritates the air tubes, produces at length organic disease of its membrane, or of the lungs themselves." Cabanis, (a celebrated French writer,) remarks, in his "*Rapports du Physique et du moral de l'Homme*": In the closed workshops, especially in those where the air is not easily renewed, the muscular force diminishes rapidly, the re-production of the animal heat grows feeble, and men of the most robust constitution acquire the soft and variable temperament of women. Added to this, if there are a tolerable number of workmen, the progressive alteration of the air operates in a direct and most pernicious manner first on the lungs, where the blood receives its vital power, and soon on the brain itself. So that, not to mention those unwholesome emanations which are often exhaled from the material manufactured, or such as may be employed in its preparation, almost all circumstances unite to render manufactories unwholesome to both body and mind." Vol. ii. p. 83.

An atmosphere thus impregnated acts indeed as a slow poison, and produces a particular impression upon the brain, apparently through the blood which looses its florid colour, and when circulated through the brain in this condition lowers all the powers of life in direct proportion with the extent of deterioration, and this is one cause of the low degree of vital energy possessed by many artisans.

The introduction of foreign matter into the lungs is scarcely less fatal. (Patissie's remarks of cotton spinning.) These

workmen constantly inhale an atmosphere loaded with fine cotton dust, which excites the bronchi, provokes cough, and maintains a perpetual irritation in the lungs. They are often obliged to change their employment to avoid consumption. Other trades are similarly liable, in certain degrees, as stone masons, flax dressers, pearl button makers, bakers, and many others.

We need not enlarge upon the fatal effects of gun barrel, sword blade, and needle grinding. It would be well, if, instead of offering a premium to vice, by sending our fat-fed convicts to the salubrious shores of New Holland, the government would employ them in those trades, in which so many hard-working and honest men are now sacrificed. The workers in these trades seldom live past forty; perhaps live a year or two in hopeless misery and disease, a burden to a family they can no longer support. There is no effectual remedy for such evils but in the choice of some other trade. After what has been explained of the nature, office, and requirement of the lungs, to preserve health, we must grant that the position of nearly all the working classes must be highly injurious, nor can the exceptions, however numerous, alter the fact: too ready to reason from ourselves and our individual feelings, we conclude that if *our* health has *kept up* in spite of the evils of close rooms, sudden changes of temperature, and an atmosphere more or less clouded with dust, therefore large rooms and a pure ventilation, are not essential to health;—let us not forget what was said as to the real nature of the health, and few, perhaps, can, after all, claim any further immunity than absence from sickness.—Compare the pallid face and sunken cheeks of the citizen, with the ruddy glowing features of the agriculturist, or the Swiss artisan; or compare the catalogue of diseases now with the nosologies of the old writers on disease, and this deception cannot escape us;—it is happily true that many fearful maladies have become partially extinct; but in their place we have a hundred complaints that sicken rather than kill. And how are these terrible and increasing evils that float in the full tide of civilization, to be obviated? Remove the

cause.—Yes, that would certainly do it. What! upset the very foundations of commercial enterprise to give ruddy cheeks to a few millions of artisans?—impossible! impossible! cries the capitalist. It may, perhaps, be said, that under no circumstances could a pure air be obtained in crowded manufactories. Hear what Mr. Symons says in reply: “The want of proper ventilation is another fearful evil, and one little remediable in large towns by the best legislative enactments. But if it be hence maintained that factories are necessarily prejudicial, I would simply answer by pointing to that, for instance, of Mr. Edward Ashworth, at Egerton, near Bolton, where the effects of fresh air, village morals, and the careful superintendence of a philanthropic employer, are proved to be more than a preventative to every evil; and where rosy cheeks, perfect health, and strength and spirits, are practically demonstrated to be perfectly compatible with the present nature and duration of factory labour.”* The Birmingham artisan is actually much better off than those in many other large towns: the elevation of the land is high, the soil dry, the manufactories are neither so low nor so crowded; in fact, the curse of capitalism is not felt so severely here as in Manchester, Glasgow, or London. The division of capital is more equal, the number of small masters very great, and the variety of trades, altogether form a number of advantages, unknown to those towns where a staple commodity prevails. Compare, again, the dark damp cellars of Manchester, London, or Glasgow, where thousands of poor creatures are huddled together, inhaling the most disgusting and poisonous air, compare this with the single and cleanly houses of most of the artisans of this town, and amid many evils, we must say there is much to be thankful for. The diseases affecting the lungs are particularly of two kinds:—the first are caused by breathing an impure atmosphere, loaded with any kind of dust, producing irritation of the membrane, cough, spitting of blood, and ultimately consumption; or an atmosphere deteriorated in its own nature, by the

* See p 126, “Arts and Artisans at home and abroad,” &c. by J. C. Symonds, Esq.

breathing of too many persons, thus depriving it of its vital air, and leaving that which is fatal to life, charecoal fires, gas-lights, also deteriorate the atmosphere; the effects on the body are head-ache, sickness, indigestion, and temporary loss of sight, or even paralysis.—The second kind of diseases are such as depend upon replétion, (overflow of blood) and will of course be spoken of in connection with the digestive organs. With regard to self-government, the necessary rules must be obvious to all;—if we cannot remove these causes of indisposition, counteract them by all possible means; take every opportunity that offers to enjoy fresh air, and that at as great a distance as possible from the town, inasmuch as the electrical properties of the atmosphère are more influential in proportion to the difference of elevation, soil, and vegetation.

As far as possible and even at the sacrifice of some convenience, the house of the artisan should be at a distance from his manufactory or shop, both for the sake of exercise in passing to and from his meals, and also for the great benefit of a pure and salubrious air:—this rule will no doubt meet with a good many shakes of the head from those who probably have acted in the very opposite way; and for the sake of saving time and saving their legs, have taken no care to save their health. Certainly their favourite axiom would be: “Sir, we can live without health, but not without bread;—we save halfan hour a day by living in a place where we can hardly breathe.” It is a common plan to stop up the chimney in bed rooms, than which nothing is more injurious, since the chimney forms the best possible ventilator at a time when the lungs are unprotected by our senses. Too many sleeping in one room is also highly injurious; curtains, inasmuch as they interfere with the free passage of the air, are best drawn. In times of sickness, it behoves the friends of the patient to keep the room well ventilated; curtains at such times are more than ordinarily objectionable, except to keep off the draught from the door, striking immediately on the patient; an occasional change or shaking of the bed clothes is often most grateful, and quiets the restlessness of the patient more than an opiate draught. Sponging the chest every morning is an

admirable protection to the lungs, by acting on the cuticular nerves, and thereby diminishing the susceptibility of the bronchial tubes of the lungs. Bathing the head is also a preservative, by destroying the susceptibility of the mucous membrane of the nose and fauces, and thereby preventing colds in the head, which frequently terminate in a general inflammation of the mucous membrane extending to the lungs, producing an obstinate chronic cough, and not unfrequently the germ of permanent pulmonary disease. It may be mentioned, that Dr. Coombe particularly recommends the use of a handkerchief tied over the mouth in passing from a warm to a cold atmosphere. "The cold air," he remarks, "thus becomes partially heated, and deprived of its moisture in passing through such a medium, and the protection thus afforded is so marked, that few who have tried the precaution will afterwards neglect it."

Those diseases that assail the lungs, depending upon repletion, we shall notice in connection with the subject of digestion and the digestive organs, which we shall now consider.

All that has been said of the functions of the skin and lungs, and the necessary demands of both those important organs, has a natural and direct reference to the function of Digestion; indeed, this part of our subject, though last, is indeed not least, but inasmuch as its office in the vital economy precedes and in a great measure determines the healthy function of every other organ of the body, it demands our most serious attention, and still more so that the organs of digestion are even more under our controul than any other, for their healthy function mostly depends upon our voluntary obedience to their laws. How admirably is this exemplified in the incomparable letter which Don Quixote writes to Sancho Panza, when advising him how to conduct himself as governor of the Island of Barataria:—"Eat little at dinner, and less at supper: for the health of the whole body is tempered in the forge of the stomach." How much more irrational on this subject are those who laugh at and pity the idealising Knight of La Mancha, forgetting that there is a kind of insanity prevailing widely among mankind worse than tilting with wind-mills

or slashing of wine-skins, a madness in practice that carries with it no illusion, and leaves its victim an irrecoverable sufferer.

With regard to the regulation of our gastric appetite, we too much resemble the lady, who, on being told by her physician that a certain kind of food, of which she was going to partake, was most indigestible, replied: "What's digestion to me, Doctor? I leave that to my stomach." Thus it is with all mankind, the palate, instead of being a mere telegraph to the stomach, becomes a pander to excess and an auxiliary to disease. The importance of the digestive function, is plainly made known to us, by its complicated and various organs. The teeth, salivary glands, stomach, nervous system, intestines, spleen, liver, pancreas, are all occupied in the elaboration of that fluid which is to sustain the vitality of our bodies. To keep up a healthy supply of blood requires something more than good cooking and tid bits, a natural appetite, the quality, and the quantity of the food, an absence from noxious admixtures in the form of alcoholic drinks, strong wines, cordials, or the stimulating cakes and sweets of the epicurean. As far as time will allow, we shall examine the subject of Dietetics, or what kind of food is most suitable for the supply of healthy blood, and what is chiefly to be avoided. Except with a few domestic animals, the particular food is always selected which is suitable to their natures, whether it be vegetable or flesh; and we know that the diseases afflicting animals, especially those in a wild state, are few and accidental. Man, who, by his organization, is adapted for all climes and temperatures, is also adapted in his organization to eat of a variety of food, and that of the most opposite quality; and whether it be animal or vegetable food, we may eat of both, and yet live in the enjoyment of health to a matured age. But while we thus enlarge the bill of fare, we must not forget that there are kinds of food which the stomach of a healthy man should not require; such are the condiments and stimulants of the gourmand. The only legitimate stimulus is a good appetite, and to require any other (exclusively) implies a derangement of the organs. Dr. Beaumont, an American physician, kept in his service a man, named Alexis St. Martin, who had received a gun-shot wound

in the stomach and lungs; every part healed except the stomach, a large opening ever after remained in the side, and by which means, Dr. Beaumont was enabled to make some most curious and valuable observations on the function of digestion in the stomach. He first proved, that the digestive function depended entirely upon the action of the gastric fluid,—that gentle agitation or motion assisted digestion,—that food not chewed required a much longer time,—that different kinds of food varied more or less as to time in digesting,—that broths, soups, and all fluid aliment was long in digesting, and had first to lose their aqueous mixture by absorption before the gastric juice could act upon it. That it was most important not to eat but at regular intervals, for if fresh food was taken before the preceding was thoroughly digested, redness and a low inflammation spread over the stomach. That animal and farinaceous (flowery) aliments, are easier of digestion than vegetables. That stimulating condiments are injurious to a healthy stomach. That the use of ardent spirits always produces disease if persevered in. That the quantity of food usually taken is more than the wants of the system require, ending in disease both functional and organic. That oily food is difficult of digestion. That the temperature of the stomach is 100° Fahrenheit. That exercise elevates the temperature, and that sleep or rest depresses it. That the time required for digestion is various, according to the food, or the state of the stomach, but that an ordinary meal of meat and bread, &c. requires from three to four hours.

Many persons will perhaps smile at this long string of conclusions, and exclaim, what has the labourer and working man to do with soups, and condiments, wine, and cordials, that there is as much difference between the contents of the poor man's cupboard and the rich man's larder as there is between getting one's bread, and getting an appetite, that the fear is not of filling the stomach too full but of leaving it too empty, and certainly the latter is almost as bad as the former. "In the richer classes of society, (says Gaskell,) a tribe of diseases having their origin in too nourishing and stimulant a diet which produces a precisely similar train of suffering (with those produced

by want and an imnutritious diet among the poorer classes,) has attracted considerable attention. It is indeed a new feature in the history of medicine to find the two extremes of the social confederacy labouring under the same maladies, running through a similar course and producing the same peculiar feeling of morbid irritability, intermitting with the most profound melancholy. If the situation of the pampered man of wealth, who is the victim to indigestion is pitiable, how shall that of the operative be described? Language wants force to depict its evils; unmitigated as it is by all those foreign aids which can be procured by individuals differently circumstanced, he is condemned to labour on, a prey to bodily sufferings and the most deplorable mental anxiety, alternately drowning his troubles in the delirium of intoxication, or standing a miserable and woe-worn figure before his machine or loom.”* Let us be thankful that this melancholy picture does not prevail in this town, and God forbid it ever should. It is unhappily true that many diseases arising from repletion and excess are created by want and starvation, a Sylla on oneside, a Charybdis on the other, exemplifying by the most melancholy of all instances the truth of the adage, that extremes meet. Let it not be forgotten that this can only apply to the very poor and destitute. The diseases of starvation are not such as prevail here; the diseases of the operatives in Birmingham are mostly those of excess, though perhaps more from drinking than eating. It is a matter of the utmost importance both as to the health and economics of the working man, that the truth should be known, that the health and strength depend not upon the ingesta but the digesta, in other words, and let this rule never be forgotten, that the income should be in the ratio of the expenditure. Would men but observe this rule, and the Doctors would soon be placed on the government emigration list.—There is no greater error than the opinion which generally prevails as to the quantity of food required, an error sustained by appetite and ignorance, at the cost of health and life. The following valuable extract will perhaps serve to convince the reader more than the most forcible arguments;

* See Gaskell, “Artisans and Machinery,” page 236.

for, as Burns quaintly expresses it: "Facts are chisels, that winna ding, and canna be disputed."

The agricultural labourers of this country are on the whole a strong body of men. Notwithstanding many defects in their modes of life, as to the other essentials of life—simple and sufficient diet, warmth of clothing and lodging, and ventilation, including a circulation of air which is warm as well as pure, they are, comparatively to other labourers, a healthy class. That the agricultural labourers are on the whole more healthy than the preceding generation of labourers, is proved by the increased duration of life amongst them as shewn by the mortuary registers.

The governors of several of the workhouses where the paupers were allowed a high diet, stated to me that the change of diet on the first entrance of paupers into the bouse sometimes proved too much for them, and "carried them off." From the statements made by medical men, it appeared that in such houses acute disease was often rife and fatal. The number of these statements with reference to large classes of persons appeared to me to establish the conclusion that the heavier diets are amongst the least healthy; but inasmuch as no account that I could find is ever kept of the sickness prevalent at any of the workhouses, I was unable to obtain any precise results on the subject.

On further enquiry, I found, however, that a general account of the sickness and mortality which occurs in each goal throughout the country is annually returned to Her Majesty's Secretary of State for the Home Department, in compliance with the regulations of the Gaol Act. Upon an examination of these returns, I found frequent instances where the average amount of sickness bore a proportion to the amount of diet. Where the diet was increased in point of quantity on account of the prisoner's being subjected to hard labour, there the sickness also increased. These results led me to a further examination of the subject.

GAOLS.	Cost per week.	Ounces of solid food per week.	Sick per cent.	Deaths annually.
	s. d.			
Twenty lowest diets	1 10½	188	3	1 in 622
Twenty intermediate diets	2 4¼	213	18	1 in 320
Twenty highest diets	3 2	218	23½	1 in 266
Twenty-one lowest cost, but highest quantity	2 5	257	11½	1 in 277
Twenty highest cost, but lowest quantity	3 0½	238	11¼	1 in 354

'There is nothing set forth in the face of these returns as to the localities, and nothing in the circumstances of any of the prisoners to mark the predominant cause, other than the invariable connexion of heavy and light diets with the comparatively high and low rates of sickness and mortality.

'In the returns of the 20 goals of the lowest cost, will be found several of the larger goals of the metropolis, such as Nowgate, Clerkenwell, Horse-monger-lane; crowded goals, in which the prisoners remain for shorter periods than in the goals of the agricultural districts. From this circumstance it might be inferred that the diminished amount of sickness in those goals is attributable chiefly to the shorter periods of confinement of the prisoners; but this inference is rebutted by the facts, that the sickness consequent on any change of diet takes place at the commencement of the confinement, or within shorter periods than those during which the average of the prisoners remain in the goals in question; and that

the health of the prisoners is proportionately good in other goals, where the average periods of confinement are long, but where the diet is simple and the cost is low. It is to be observed also, that this objection does not apply to the intermediate diets compared with the highest diets; there being, as will be seen in a subjoined table, no material differences in the periods of detention between the two classes. It is further to be observed, that in the goals where the cost of maintaining the prisoners has been reduced, the sickness of the prisoners has in no recent instance been increased, but has in general been diminished.

According to this mode of obtaining the results, it appears that the attacks of sickness increase progressively with the increase of the dietaries. The mortality varies very little; but it is the highest where the diet is full.

‘I might venture to assume from these facts, at least, that the sickness is increased as the quantity of food is increased; and at all events, that the lowest actual dietaries have no deteriorating influence on the health of the prisoners.*

But the evil consequences of ignorance of the capabilities and wants of the stomach, are severely felt by the sick man,—what is a more common error than that, if a man can but eat, he must do well, and thus against both stomach and sense, an organ that has been disabled by excess, is still tortured by excess,—and at a time when an absence from all food whatever is the most desirable, the poor sufferer’s palate is bribed into the enemy’s service, and what between “tid bits,” and “a drop of something comfortable,” the poor stomach is well nigh destroyed for ever. The weaker the stomach the less it can digest, and it is only what is digested, not what is eaten, that adds to the strength of the body; a small quantity well digested renews the strength both of the stomach and the whole body,—the very reverse happens if the stomach be oppressed by a larger proportion.—It becomes therefore the most solemn duty of the patient to adhere strictly to the advice of his medical attendant, whose studies and long experience are certainly to be preferred to the whims and fancies of ignorant friends and neighbours.†

* See page 48, 49, and 50, “an Essay on the means of insurance against the casualties of Sickness, Decrepitude and Mortality,” &c. London, Charles Knight and Co, 22, Ludgate Hill, 1836.

† Among other evils of this kind, there is one we cannot pass over. It is a common practice, especially in this town, to eat large suppers. Tripe, the standing dish of the Birmingham Symposium, has done no little harm on this account. I never hear this “ready at seven,” proclaimed by the bellowing Coryphæus of the Tripe House, but I fancy I see a hundred incubi and imps of indigestion.—Consider for a moment—the nature of the stomach, the decrease of its temperature and diminished power of digestion when sleeping, the recumbent position of the body, the indolent

We spoke of a class of diseases affecting the lungs arising from plethora or excess of blood. If the quantity of blood created by the food taken in, be greater than the loss of the solids and fluids of the body, the lungs, into which the blood gushes with every beat of the heart, become gorged to such a degree as to cause rupture of the vessels, or such an engorgement as produces a pulmonary apoplexy and death; at the same time, the distended blood-vessels so obtrude on the size of the air-cells, that the blood returns to the system imperfectly oxygenized and unfit for the purposes of life. Those persons who are of a scrofulous or consumptive habit, as well as those who make blood fast (as is commonly said), should often observe a fast-day, taking fish or light puddings, and water for drink, instead of the usual meal of meat and beer; it is unknown how much good the constitution derives from such changes, while a particular liability to disease is subdued.

Among other reasons which may be offered to shew the value of temperance in eating and drinking, is the influence of the digestive organs on the mind. Whatever may be the moral principle, be assured the happiness of the individual is essentially concerned in the state of those organs, and even in

state of the organs, especially the brain, and who can wonder that people suffer from dreadful dreams, fever, thirst, waking with a dry and coated tongue in the morning, a feeling of listlessness and debility, and no appetite,—who can wonder, when we remember the “fourpenny cuts” of indigestible tripe, to say nothing of cheese and bread, with “a sup of beer,” meaning thereby a quart or so, that had been turned into the stomach to be converted into anything, but a mild and wholesome chyle. Both the English and Americans are so addicted to excess in eating, that indigestion with all its auxiliary evils, universally prevails; there is scarcely an European traveller in the “far West,” whose ‘America’ does not offer some philosophic warnings against this stuffing propensity, forgetting that “England” is no less culpable, and that thousands of sickly sensualists die every year “by the visitation of eating too much,” when the plume and the pall bend in solemn satire over the *last* remains of a citizen, “esteemed, (as the papers express it,) for every moral and social virtue.”—Such cases of *Felo de se* should be commemorated like that of their prototype the Caliph Soliman, so satirically described by the admirable Gibbon. “A still more fatal and irreparable loss was that of the Caliph Soliman, who died of an *indigestion*. The Caliph had emptied two baskets of eggs and of figs, which he swallowed alternately, and the repast was concluded with marrow and sugar. In one of his pilgrimages to Mecca, Soliman ate at a single meal, seventy pomegranates, a kid, six fowls and a huge quantity of the grapes of Tayef.” (Chap. 52, Roman Empire)

spite of wealth or wisdom, indigestion will cloud the mind, and dissipate every attempt at cheerfulness; like the "old man of the sea," it oppresses the spirits with an insufferable melancholy, until at last life is left without a charm.

The influence of disordered stomach and bowels on the actions and conduct of men is most evident. The ancients, who caught glimpses of much that was true, often speak of this fact. "The Egyptians," says Herodotus, "in embalming their dead, always took out the intestines." Porphyry informs us what became of these; they were put into a chest, and one of the embalmers makes a prayer for the deceased, addressed to the sun, the purport of which was to signify, that if the deceased had, during his life, been at all criminal, it must have been on account of these, pointing to the chest containing the intestines, which was afterwards thrown into the river."*

No person can ever expect to enjoy good spirits and cheerfulness, nor are their virtues even to be trusted, whose stomach and bowels are deranged. Voltaire, who was no less a philosopher than a wit, particularly recommends us never to ask a favour of a great man, until we have first enquired of his valet if his master's bowels have been opened that day. When we consider the delicacy of our structure, its complication, its susceptibilities, how much it can affect, or how little, should we not be ever on the alert to preserve the the just equipoise and harmony of our animal economics. Without this vigilance, who is to enjoy a sound mind in a sound body? who can hope boldly and resolutely to wrestle against this contentious world?

While we expose the influence of the body on the mind, we must not forget that the action is strictly reciprocal, and all moral excess will be as equally prejudicial to health. Even anger and violent mental emotions, says Dr. Beaumont, sometimes produced the same appearances of inflammation in the stomach as were caused by drinking ardent spirits, or eating too much, and gave rise to temporary indigestion. Perhaps

* Herodotus, translated by Beloe, p. 98.

there is no one who has not felt more or less the influence of the mind upon the stomach, either from sudden or protracted grief. The history of mankind is indeed a record of such cases, for whether of joy or sorrow, of excitement or depression, from the high wrought passion of fanaticism down to the low huxtering spirit of usury, the stomach and digestive organs invariably suffer and are the first to suffer. How important is it, especially with children, to surround them by those favourable circumstances which will the most easily induce a habit of amenity and cheerfulness, that their tender bodies may be strengthened and their health established. The diseases of childhood are mostly glandular, and no doubt depend much upon the disturbed state of the digestive organs, caused by unkind or irritating treatment.

With regard to the use of spirits, beer, wine, and all alcoholic drinks—there can be no doubt that the working classes have sustained an enormous moral and physical injury by spirit-drinking. The question arises, are spirits at all necessary? the general opinion of medical men says no. Many ingenious arguments are advanced by the anti-teetotallers, while some would justify even drunkenness itself by an appeal to facts, and support their opinion with Rabelais—“that drunkenness is better for the body than physic, because there be more old drunkards than old physicians.” No one, certainly, can object to the principle, that total abstinence is better than intemperance, but how far alcoholic drinks are to be excluded, is a question that involves some most serious considerations. There can be no doubt, the more we can increase the domestic and social happiness of man, the less will he require and the less apply to those oblivious antidotes, which are all that is left to support the pang of life with thousands of our unhappy and destitute fellow-beings.

“If it be asked whether I go the length of proscribing all fermented liquors, (says Dr. Combe, whose opinion I copy as very much in accordance with my own,) from small beer upwards, I answer that I do not: I merely mean, that where the general health is perfect without them, they ought not to be taken, because then their only effect is to produce unnatural

excitement. But wherever the constitution or health is so deficient, or the exertions required by the mode of life are so great that the system cannot be sustained in proper vigour without some additional stimulus, I would not only sanction but recommend the use of wine, or such other fermented liquor as should be found by experience to support the strength, without quickening the circulation, exciting the mind, or disordering the digestive function.”—As a general rule however, none can deny, that total abstinence itself is better than intemperance, but what is intemperance, the state and feelings of the individual can alone determine.

From the substance of this Lecture, however imperfect it may be, it is to be hoped that some interest has been excited, some useful information conveyed. It were a painful and gloomy thought, that such interest, such information, should be altogether forgotten, lost in the irresistible habits of indolence and excess, that disease and misery should still hold their undisputed sway, usurping the natural possession of health and happiness, and weakening by habit the very virtue of resistance. But there is another and nearer appeal than even our own interest,—the welfare of the frail and helpless world of infancy and childhood; health or disease, power or weakness, pleasure or pain, are, to an unthought-of extent, transmitted to the child, whose future destiny is to be determined by the prudence of the parents;—if they can give them no other boon than labour, as their possession through life, they can at least make that labour easy by giving them health and strength to endure it. While we enforce rules for the government of the health, let it be remembered that it is not a hasty and brief adoption of them that can secure to us instant and permanent health; the long entanglement of previous irregular habits must be patiently retraced, and when that is done, which is quite possible, new and better habits will supply their place,—habits that will become a property of easiness, while the richness and pleasures of pure and permanent health, will compensate for the loss of the present inebriating and fevered moments of excess. “Tell me how

many pawnbrokers and doctors there are in a country," said Hieracles, "and I will tell you the condition of its people." Remedies are retrospective, *preventives* only are prospective,—relief is implied in the former, in the latter a happiness that wants no contrast when appreciated, and to appreciate we must acquire. There will be no surer sign of the moral, intellectual, and physical improvement of mankind, than an observance of this rule, for prevention implies that foresight which wisdom only can possess, that self-government which virtue only can render easy, and that delightful sense of health and peace, which wisdom and virtue can alone attain. Contemplating the prospect of such happiness to mankind, the philanthropist might turn with some apprehension, to ask what means existed to work this change, while the shocks and concussions of public credit, the embarrassments of commerce, and the cry of popular distress, might silence hope itself, if hope were not sustained by a narrower insight into the virtues of a neglected people; to find the working classes of this kingdom, though encompassed by so many discouragements, yet making gigantic efforts to procure their own independence, too proud even amid their poverty to tax the superfluities of the rich, forming themselves into societies for their mutual aid and support. A philosophical writer characterizes the great progress of these institutions as "one of the most striking manifestations of virtue that ever was made by any people." He observes, that "For persons merged in poverty, and totally deprived of education, as the English population heretofore have so generally been, it is not easy or common to have much of foresight, or much of that self-command which is necessary to draw upon the gratifications of the present for those of a distant day. When a people thus situated have a provision made for them, to which they can, with certainty, have recourse, as often as they themselves are deprived of the means of earning their own subsistence; and yet, notwithstanding this security, choose to form themselves almost universally into Benefit Societies, in order that, by

taking something from the means of their present scanty enjoyments, they may in sickness, disablement, and old age, be saved from the necessity of having recourse to public charity, and may continue to live to the end of their days upon the fruit of their own labour, no burthen to the public, or dependant upon its bounty; they exhibit a combination of qualities, the existence of which could hardly be credited, if it were not seen; above all, in a country in which the higher ranks too often display an eager desire to benefit themselves at the public expense.”—*Sup. Ency. Brit.*, Art. *Benefit Societies*, p. 263.

